

XGVela LF Networking

January 2021

 THE **LINUX** FOUNDATION

Project Overview

› Project Background:

- › Donated by LFN member China Mobile, XGVela intends to provide a **telecom cloud native PaaS platform** designed to provide PaaS capabilities needed to run, develop, manage and maintain telco-related services.
- › The first open source platform-as-a service(PaaS) for 5G and beyond network functions.

› Project Functionalities:

- › XGVela **refines common capabilities required by upper layer services as PaaS functions on platform layer.**
- › The platform brings **General PaaS** functions from existing open source PaaS component projects (e.g. OKD, Kubernetes, Prometheus, Istio, Envoy, Zookeeper, etc.), and enhance them based on telco requirements.
- › Intends to generate **Telco PaaS** functions which have strong telecom characteristics and are under exploration.

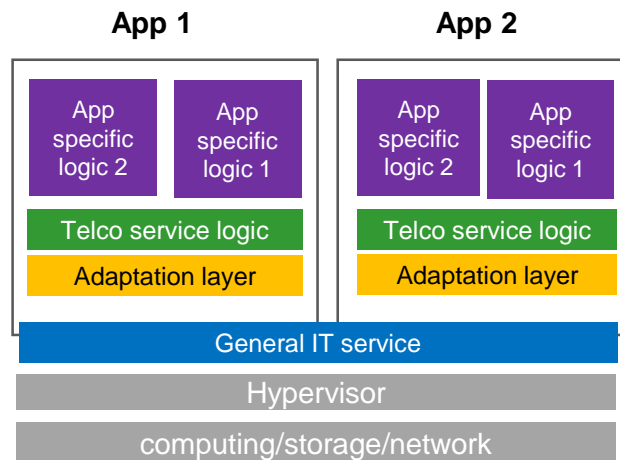
› Partners:

- › TSC member: China Mobile, Mavenir, RedHat, Huawei, Intel, SigScale, STC, ZTE, Ericsson, Nokia, China Telecom, China Unicom, WindRiver
- › Other Partners: Rakuten, Dish, TIM, Samsung, F5, Beijing University of Post & Telecommunications

XGVela – High-level Architecture

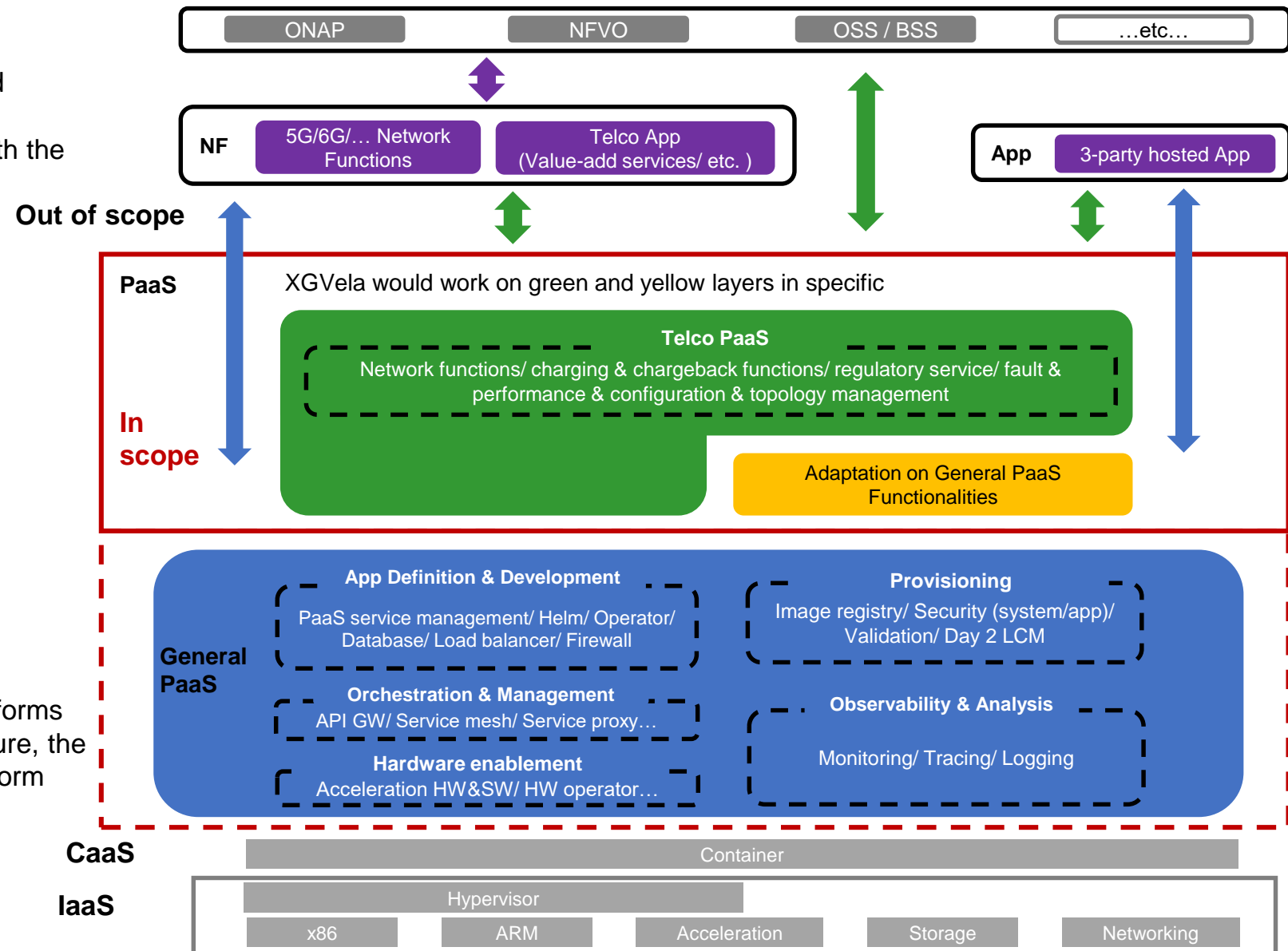
1. Application tailoring:

- The NFs / applications are further decomposed according to the microservices architecture
- Strip away the parts that have nothing to do with the application itself



2. Platform addition:

- Support the coexistence of multiple resource forms
- Based on network element software architecture, the implementation of the service rely on the platform
- Provides unified capabilities through API



XGVela – Project Vitals

- › **Project name:** XGVela
- › **Project creation date:** April 20, 2020
- › **Project license:** Apache 2.0
- › **Release Plan:**
 - › **Seed code dropped on 12/24/2020**
 - › GitHub location: <https://github.com/XGVela>
 - › License scan in progress
 - › **Release 1 scheduled for September 2021**
 - › **Architecture document:** includes PaaS framework, General PaaS & Telco PaaS capabilities, software/tool recommendations, data model & information model, etc.
 - › **Platform code:** functionalities will cover necessary PaaS framework, Telco Management and corresponding APIs. (align with Architecture doc)
 - › For 2022 and beyond: one major release per year (Will revisit on need basis)

XGVela – Project Scope

- › **Documentation**

- › XGVela requirements doc, architecture doc, etc.
- › XGVela platform User Guide

- › **Development**

- › Adaptation layer:
 - › Select the preferred General PaaS, analyze gaps with telecom requirements based on specific use cases
 - › the gap between telecom requirements and General PaaS as input of Adaptation Layer, implement Adaptation Layer functionalities for General PaaS
- › Telco PaaS:
 - › Explore Telco PaaS use cases, functionalities and realize them as adoptable PaaS components

- › **Integration**

- › Integration of two or more of General PaaS, Telco PaaS, Adaptation Layer, NFs/Application, IaaS/CaaS, Management, etc. |

- › **Testing**

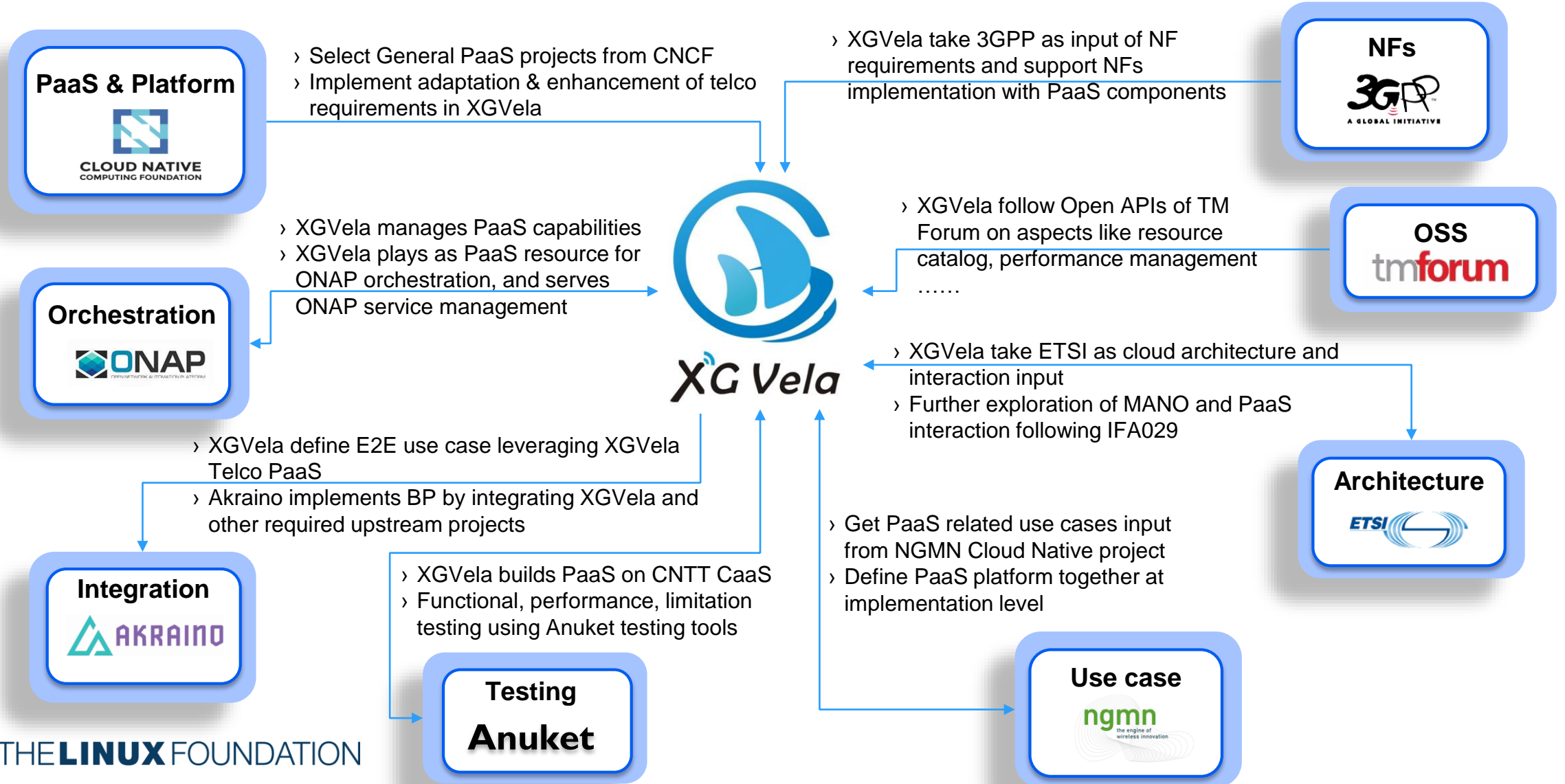
- › Platform functionality testing, performance testing, and joint testing with other community and products
 - › XGVela with cloud native network functions/applications
 - › XGVela with related orchestration and management systems, etc

- › **Platform Certification (long term goal)**

Community Health |

- › Code is new - seed code dropped on 12/24/2020
- › TSC established
 - 13 TSC members from 13 separate companies
- › Weekly TSC meeting established
- › Bi-weekly general community meeting established
- › Mailing List Subscribers: 102 members & growing
- › Represented Companies/Entities: 39 (based on mailing list from formation through EOY 2020)
- › Number of repositories: 10
- › Number of commits: 105 (code and non-code)
- › Number of active committers: 15
- › GitHub Activity 12/29/2020 through 01/11/2021: 785 views, 88 unique visitors
- › Wiki edits: 42 revisions |

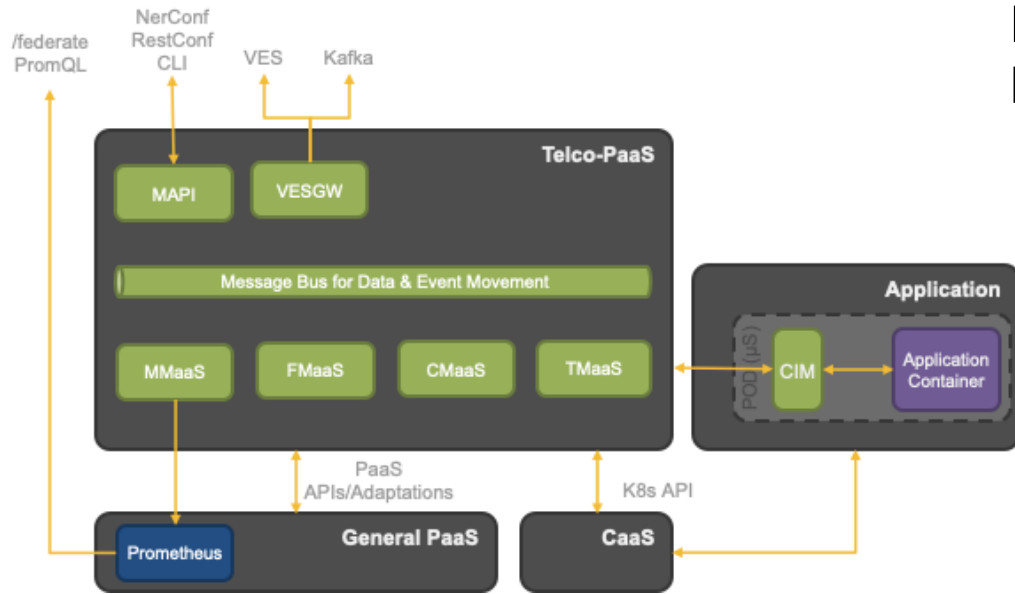
XGVela- Potential Cross-Project Interaction



Community Liaisons

Community	Liaison	Contact
CNCF	Ying Liu	liuyingy@chinamobile.com
ONAP	Seshu Kumar	seshu.kumar.m@huawei.com
Akraino	Khemendra Kumar	khemendra.kumar@huawei.com
Anuket	Ahmed EISawaf	aelsawaf.c@stc.com.sa
NGMN	Qihui Zhao	zhaoqihui@chinamobile.com
ETSI	Ying Li	liyingy@chinamobile.com
TM Forum	Vance Shipley	vances@sigscale.com

XGVela - Seed code condition



Following Telco-PaaS functions are seeded from Mavenir MTCIL.

- [CMaaS: Configuration Management as a Service](#)
Provides a consistent and versioned view of configuration using Yang and NetConf. Supports Day-0, 1 and 2 configuration flows. Interfaces with k8s for configuration discovery and push.
- [TMaaS: Topology Management as a Service](#)
Automatically discovery k8s services and builds 3GPP ManagedObjects for NFs, manages NF and µService states, supports LCM.
- [FMaaS: Fault Management as a Service](#)
Application and platform events, TCA (via MMaaS/Prometheus), event subscriptions and ONAP VES 7.1 compliant NBI.
- [VESGW: ONAP VES Gateway](#)
Built on ONAP/VESPA project with enhancements to support multi NF streams.
- [CIM: CNF Interface Module](#)
A sidecar that implements various single node design patterns to enable loose coupling of application containers to the infrastructure.
- [Helm based packaging framework](#)
- *Metrics Management as a Service (MMaaS) - In Progress*
Uses Prometheus (in General PaaS) for metrics collection. Implements the control plane for configuring Prometheus for NF service discovery, KPIs and TCA.

Status

- ✓ Seed code upload to GitHub
- 💧 Build Integration (GitHub Actions, Maven)
- Security Scan

Key Stats

- 592 unique files
- ~57K LOC, ~8K Comments
- Primary languages - Go, Java

XGVela – Project Governance

- › Project governance consists of TSC member, TSC chair & co-chair, Coordinator, Subcommittees (on-need-basis)
- › Governance team is from Active Community Members:
 - › Anyone from XGVela community with twenty (20) or more measurable contributions during the previous 12-month period
- › Election cycle:
 - › Every 12 months
- › Election method:
 - › Self nomination & public group voting
- › Initial TSC makeup:
 - › One (1) member from each participating company as agreed by the founding members
- › Detailed responsibility of governance:
 - › <https://github.com/XGVela/XGVela/wiki/TSC-Operations-and-Procedures>
- › [Technical Charter](#)

XGVela - Infrastructure Tooling

Uses modern LFX tooling platform and shared Confluence and Jira instances under LF Networking.
No custom infrastructure.

› Bug tracker

- › Jira - under LF Networking Jira (1 project)? (integration with confluence, SCRUM epics)
- › GitHub issue

› Chat tooling

- › xgvela.slack.com
- › WhatsApp

› Code repositories

- › GitHub - <https://github.com/XGVela>

› Image repositories

- › GitHub Packages - <https://github.com/XGVela>

› Workflow

- › GitHub Actions - <https://github.com/XGVela>

› Code review

- › GitHub - <https://github.com/XGVela>

› Projects Analytics

- › LFX Insights
- › GitHub Insights

› Continuous Integration tooling

- › GitHub Actions - <https://github.com/XGVela>
- › Short term and long term plans are provided [here](#)

› Product Documentation

- › readthedocs.io

› Mailing lists

- › groups.io
 - › main@lists.xgvela.org
 - › xgvela-tsc@lists.xgvela.org
 - › xgvela-tsc-private@lists.xgvela.org

› Meeting calendars

- › groups.io:
 - › <https://lists.xgvela.org/g/xgvela-tsc/calendar>

› Meeting minutes and project documents

- › Confluence (under wiki.lfnetworking.org)

XGVela – Roadmap

2020

- Establish working group & clarify goals – *Completed*
- April – launch as LF unfunded project – *Completed*
- High-level architecture – *Completed*
- December – drop seed code – *Completed*



2021

- January – admission under LFN umbrella as Sandbox project
- Release 1 – Architecture Doc
 - Complete General PaaS and Telco PaaS primary feature definition – *on track*
 - Define PaaS framework and PaaS capability integration mechanism – *on track*
- Release 1 – Generate PaaS prototype (PaaS capability development and integration)
- Demo – Usecase and story discussion in progress



2022

- Continuously complete General PaaS and Telco PaaS definition (user story driven)
- Continuous platform capability implementation and integration
- Testing – functionality test, performance test, and associated test with other community (ONAP, Anuket, CNCF.....)

XGVela Community Meetings

- Calendar:
 - <https://groups.io/>
- XGVela TSC Meeting:
 - Bridge:
 - ✓ <https://zoom.us/j/95282670859?pwd=Y2tZSGJGTvp3NGYwZHljMEhraG81UT09>
 - When : Tuesday 1:00 pm UTC, weekly
- XGVela Project Meeting:
 - Bridge:
 - ✓ <https://zoom.us/j/95137785359?pwd=eDhXSmJXdVVKOUUpUcnNaS0N4d3FUdz09>
 - When : Friday 1:00 pm UTC, Biweekly

Thanks